

Alaska Department of Environmental Conservation  
RCRA Hazardous Waste Management  
Corrective Action Oversight Inspection Report

AK 0701  
4a  
6/28/90

Facility Name: Mapco Alaska Petroleum Inc.

Identification Number: AKD000850701

Facility Location and 1100 H & H Lane

Mailing Address: North Pole, Alaska 99705

Telephone Number: (907) 488-2741

Facility Contacts: Gerald E. Fritz  
General Manager  
  
Kathleen McCullum  
Environmental Coordinator

Date of Inspection: June 28, 1990

Inspector's Name/Title: Richard Cormack *RC*  
Environmental Field Officer  
Alaska Department of Environmental Conservation  
1001 Noble Street, Suite 350  
Telephone: (907) 465-2671

Purpose:

The purpose of this inspection was to monitor the MAPCO Alaska Petroleum Inc. (MAPI) facility's compliance with the EPA 3000(h) Order signed by MAPI on January 6, 1989. It was not the purpose of this inspection to evaluate any aspect of the facility's compliance with 40 CFR 262 or 265 since a CEI inspection had been conducted for this purpose during the previous week.

Background and Compliance History:

MAPI operates an oil refinery at North Pole, Alaska. Crude oil is taken from the Trans-Alaska Pipeline System and, after distillation to recover the desired fuel constituents, the unused fractions of the crude oil are returned to the pipeline. Refinery operations began in October of 1977 under the ownership of Earth Resources Corporation (ERCA). MAPI purchased the facility from ERCA in 1980.

FILE COPY

IMAGED

QC

A March 5, 1977 non-notifier Compliance Evaluation Inspection of the MAPI facility by DEC personnel revealed a number of violations of the hazardous waste management regulations. An EPA 3008(a) Complaint and Compliance Order based on this inspection was issued on January 27, 1988 and finally signed on January 6, 1989. The 3008(a) Order carried an \$80,000 penalty.

The facility also signed an Administrative Order on Consent under Section 3008(h) of RCRA on January 6, 1989. The 3008(h) Order identified Tank 192, Lagoon B, the boneyard, and sumps 901, 905, 909-b, and 05-7 as units which had received hazardous waste, and required MAPI to conduct an Interim Measures program to remove hazardous waste constituents from these units. These units were identified in the Order as having illegally received hazardous waste in the form of seven drums Navy Brand Solvent discharged into the facility sump system between April 1986 and March 1987. The particular Navy Brand Solvent contains greater than 11.2 percent 1,1,1-Trichloroethane and 35.8 percent methylene chloride, each of which are a listed hazardous waste (F001 or F002). The 3008(h) Order also requires MAPI to conduct a RCRA Facility Investigation (RFI) and perform corrective measures dependent upon and in accordance with the findings of the RFI.

A July 31 - August 1, 1989 Corrective Action Oversight inspection of the MAPI facility by EPA resulted in a report which concluded that the facility was operating in compliance with the time lines in the EPA Orders at the time of the inspection.

In addition to the above mentioned EPA Orders, the facility is also operating under a DEC compliance Order which addresses cleanup of floating product lenses on the groundwater, and the dissolved hydrocarbons in the groundwater resulting from the floating product. Benzene has been found as the principal dissolved constituent. Although the facility has had a number of fuel spills from various sources since beginning operation in 1977, cracked concrete gathering sumps and old bolted tanks have been considered as being the primary sources for the floating product. The attached July 9, 1990 letter (Appendix A) from MAPI's Gerald Fritz to DEC's William McGee provides an update on MAPI's product recovery activities under the DEC Order.

According to a June 5, 1989 letter (attached as Appendix B) from EPA's Chuck Shenk to MAPI, groundwater contamination from sources such as the fuel spills and leaks, which are not otherwise related to the units cited in the 3008(h) Order, may have a bearing on the ability of MAPI to conduct a clean closure of the units under Subpart G.

The MAPI facility was also the subject of a Comprehensive Groundwater Monitoring Evaluation (CME) inspection on May 22 and 23, 1990. An EPA contractor, PRC, conducted the inspection which centered on evaluation of the adequacy of the design and operation of groundwater monitoring systems at the facility. The inspection included splitting of samples from several monitoring wells between PRC and MAPI. This inspector accompanied the sampling team on the first day of the CME inspection.

The 1987 and 1989 CEI Inspection reports in the DEC hazardous waste file for the facility offer considerable additional information on background and compliance history.



Introduction and Record Review:

The inspection began at 1:25 p.m. with an interview with the MAPI Environmental Coordinator, Kathleen McCullum, who was the only facility participant in the inspection. The Corrective Action Oversight inspection was a subject of conversation during the previous week's CEI inspection closing interview with Ms. McCullum and, as a result, she had an approximately one week notice that the inspection would occur on this date. The inspector explained the purpose of the visit and requested Ms. McCullum to begin the discussion by highlighting significant activities related to the EPA Orders that have occurred since the last Corrective Action Oversight inspection on July 31, 1989.

Ms. McCullum provided schedules from the EPA-approved RFI workplan for closure of the "units" identified in the 3008(h) Order. The "units" in this instance include Tank 192, lagoon B, the boneyard, and sumps 901, 905, 909b, and 05-7. According to Ms. McCullum, MAPI had presented the closure plans for these units to EPA in February of this year and was still awaiting an EPA response at the time of the inspection. Ms. McCullum discussed the various units as summarized in the following paragraphs.

According to Ms. McCullum, Tank 192 as it existed as a unit is entirely gone now. A new tank, also designated as Tank 192, is in its place.

Ms. McCullum stated that Lagoon B had been taken out of service in the summer of 1989. MAPI hopes to have the closure plan approved by the end of this year because the facility can not formally close the unit until then. Ms. McCullum explained that MAPI had submitted the plan in February and has proceeded to do work they said they were going to do, even though they have not been officially approved to do so by EPA. Ms. McCullum stated that the facility was aware of the risk of non-approval from EPA, including the possibility that they might have to go back and do additional work at some units, and has been accordingly conservative in sampling and documentation. According to Ms. McCullum, MAPI is currently cleaning sludge from Lagoon B. Ms. McCullum explained that the sludge is considered to be non-hazardous because the levels of benzene are very low and no chlorinated hydrocarbons were found in the samples. MAPI is planning to clear the sludge and pull the Lagoon B liner out this year. Ms. McCullum said that she did not think they would manage to get the sludge offsite this year.

According to Ms. McCullum, MAPI sampled and analyzed the boneyard at the end of May 1990 instead of in April as described in the workplan. Xylene and ethylbenzene were found in two of the boreholes but at levels well below the action levels described in the closure plan. According to Ms. McCullum, MAPI has completed all closure activities for the boneyard and for the sumps. Ms. McCullum stated that the recently completed Lagoon C rests on top of an area that was once included in the boneyard and MAPI sampled the particular area extensively prior to installation of the lagoon for added assurance that the boneyard closure would be considered adequate by EPA.

Ms. McCullum stated that MAPI cleaned all of the units that are sumps in March like they said they would in the closure plan. MAPI had a Shannon and Wilson engineer onsite to



witness activities. Sumps were inspected for integrity during the cleaning. Sludge was sampled for hazardous waste characteristics and for EPA method 8010 (chlorinated hydrocarbons). Ms. McCullum stated that no methylene chloride or 1,1,1-Trichlorethylene constituents were found.

Ms. McCullum then discussed the status of the MAPI groundwater monitoring well program. Ms. McCullum stated that the facility switched to quarterly monitoring well testing in November of 1989, if there was no indication of a contamination hit from a given well. DEC was notified of this change prior to implementation because language in the compliance Order with the state otherwise specifies monthly testing. All wells sampled in February 1990 were associated with units and selected wells downgradient.

Ms. McCullum explained that monitoring well (MW) 104 is one which is sampled monthly because benzene was found. According to Ms. McCullum, this was the only hit out of the samples from the original perimeter monitoring wells. MW 104 is located about midway between the truck loading rack and the northern property line of the facility.

In some perimeter wells MAPI is monitoring for product on only a monthly basis if product has never been found. According to Ms. McCullum, MAPI had also sent a notice to DEC regarding this and had received tacit approval.

Ms. McCullum stated that she had been informed by Doug Dasher that, at the time of this inspection, a permit was in the mail for a new infiltration gallery to be installed west of Lagoon A.

According to Ms. McCullum, all product recovery wells are checked once a month or every day depending on what was observed during the last sampling visit for each well.

Ms. McCullum stated that Task III in the 3008(h) was considered complete when the RFI workplan was approved by EPA. Task IV is to include submittal of the draft RFI report. This report is due in October 1990. A great deal of the Task IV items onward to Task X depend on whether corrective action is felt to be warranted, based on the RFI report.

Since February 7, 1990 MAPI has submitted only bi-monthly status reports. The next bimonthly report is due July 10.

In a December 20, 1989 letter (attached as Appendix C) to EPA, MAPI provided a schedule for RFI activities to be accomplished during the following year. MAPI has so far deviated only twice from deadlines offered in the letter. In May (a slip from the April schedule) MAPI selected 8 people who represented a spectrum of the North Pole area populace and had a luncheon at Club 11. Ms. McCullum participated in presenting a program on corrective action activities at the facility. According to Ms. McCullum, MAPI also sends out a quarterly newsletter. Ms. McCullum stated that MAPI is also a little behind on their Community Briefing Newsletter. The July community briefing newsletter is not scheduled to go out until September.

Ms. McCullum stated that MAPI's objective is to complete all necessary field work this summer.

Ms. McCullum provided an overview of the status of monitoring and product recovery wells at the facility. In October 1989, MW 104 which had been installed to a depth of 100 feet, in order to break through a permafrost layer, had been found to contained 9 ppb benzene.

Since MW 104 was installed, monitoring wells 117, 118, 119, 120, 121, 124, and 125 have also been installed. According to Ms. McCullum, monitoring wells 124 and 125, located south of the truck loading rack, had just been installed a month previous to the inspection and there were no analytical results available yet. These wells were also put in deep due to permafrost.

Monitoring Wells 119 and 120, which were installed subsequent to MW 104, and are in near vicinity to MW 104, were also found to contain 9 ppb benzene.

MW 118, which is located about midway between MW 104 and the truck loading rack, provided a sample containing approximately 100 ppb benzene and MW 117, located very near the truck loading rack, provided a sample containing approximately 3000 ppb benzene. The truck shack well about 50 feet away from MW 117 has provided samples that have ranged from 0 to 100 pbb benzene.

MW 121, installed about midway between MW and the northern boundary of the facility, has provided clean samples.

According to Ms. McCullum, MAPI is planning on installing a pump and treat recovery well by the truck shack in the next month.

MW 118, 119, located between the truck loading rack and MW 104, were not in permafrost which was a surprise. According to Ms. McCullum a geophysical survey is planned for this summer to map permafrost.

Ms McCullum stated that MAPI is purchasing four new pump systems to enhance their ability to recover product.

MW 104 is halfway to property line.

Ms. McCullum stated that the facility air stripper towers, designed to remove benzene from pumped groundwater, were working at very high efficiency. The last samples showed 100% removal of BETX. According to Ms. McCullum, cleaned packing helped drop levels and it is now MAPI's intent to clean the packing material every summer.

#### Facility Inspection:

We first inspected Sump 05-7. Photograph #1 in Appendix D depicts the sump with MW 115 in background. Ms. McCullum explained again how the sumps had all been cleaned in accordance with the closure plan, even though EPA has not yet approved the plan.



We next inspected Sump 901. Photograph #2 in Appendix D depicts this sump with MW 116 to the right. According to Ms. McCullum, Sump 901 is really a tank 8 to 9 feet deep.

We next inspected the Tank 192 area. Photograph #3 in Appendix D depicts Tank 192. The tank in the photograph is a new tank and not the same one in which hazardous waste was disposed.

We next inspected Sump 905. Photograph #4 in Appendix D depicts this sump. According to Ms. McCullum, MAPI is planning to go ahead and line this sump even though it is an indoor sump. MAPI had previously felt that the indoor sumps were immune from the frost action that had caused several of the outdoor sumps to crack and leak.

We next inspected Lagoon B, which is depicted by photographs #5 and #6 in Appendix D. Personnel were actively cleaning sludge from the pit at the time of our inspection. Ms. McCullum stated that MAPI will have Shannon and Wilson as an outside inspector for much of the removal. According to Ms. McCullum MAPI's consultant, Radian Inc., had recommended outside inspectors after learning that the Tank 192 removal had been done without a third party present. Lagoon B has 3 monitoring wells.

We next inspected Sump 909b, as depicted by Photograph #7 In Appendix D. Sump 909b is the effluent sump to North Pole City wastewater treatment plant. According to Ms. McCullum, effluent from Lagoon A goes to Lagoon C and then to Sump 909b prior to being pumped to the City of North Pole treatment plant.

Photograph #8 depicts the new Lagoon C. Ms. McCullum explained that water flows from Lagoon A to Lagoon C to Sump 909B to the city treatment plant. Lagoon C is located on the site of part of the old boneyard. According to Ms. McCullum MAPI did lots of borings to verify the cleanliness of the area. No significantly high metal levels were found. They were also looking for 8010 and BETX. They haven't found any yet, however, at the time of the inspection MAPI had some samples in for analysis.

Photograph #9 in Appendix D depicts the boneyard. Ms. McCullum explained that MAPI had taken samples from the boneyard about one month before the inspection and that the results would be included with the July 10 update report. Three monitoring wells are present in the boneyard.

The monitoring wells mentioned previously which had been installed subsequent to MW 104 were not observed during the facility inspection because the inspector had verified the presence of each of them while accompanying the CME inspection.

#### Conclusions:

With the exception of minor slips in schedule for sampling the boneyard and implementing a phase of the Community Relations Plan, the MAPI facility appears to be in compliance with the corrective action time lines put forth in the EPA orders. It will not be possible

to evaluate the need for additional corrective action measures until the RFI final report is available in October of this year.

An irregularity is the fact that MAPI is proceeding with closure activities in the absence of explicit EPA approval. MAPI has, however, gone to great lengths to keep EPA informed of these activities and, with the exception of the removal of Tank 192, these closure activities are being witnessed by consultant engineers.

The long term cleanup of floating hydrocarbons and the dissolved constituents of the floating hydrocarbons, although currently addressed under the State compliance order, appear to carry the potential to influence MAPI's ability to attain formal closure of the units.

The discovered migration of dissolved hydrocarbon constituents to the north of the truck loading rack, as originally evidenced by samples from MW 104, is cause for concern. MAPI's reaction to this by installing additional monitoring wells and a recovery well at the probably source has been prudent

Appendices:

Appendix A: June 5, 1989 letter from EPA to MAPI

Appendix B: July 9, 1990 letter from MAPI to DEC

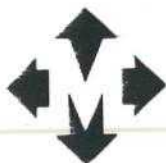
Appendix C: December 20, 1990 letter from MAPI to EPA

Appendix D: Photographs

**Appendix A**

**June 5, 1989 Letter from EPA to MAPI**





CO-037  
**MAPCO ALASKA PETROLEUM INC.**

1100 H&H LANE  
NORTH POLE, ALASKA 99705  
(907) 488-2741

July 09, 1990

Mr. William McGee  
State of Alaska  
Dept. of Environmental Conservation  
1001 Noble Street  
Suite 350  
Fairbanks, Alaska 99701

Re: Groundwater Remediation Status Report

Dear Mr. McGee:

During the months of May and June, 1990 1,373 gallons of product were recovered. The cumulative product recovered as of June 30, 1990 is 273,891 gallons.

Attached is a graph which illustrates the fluctuations of the water table across the North Pole refinery between January and June 1990. The water table has fluctuated rapidly as it normally does during the summer season.

Because the air stripper treatment efficiency was beginning to drop off, all three strippers were taken out of service and the packing cleaned during the month of June.

MAPI has received ADEC's approved wastewater discharge permit. MAPI expects to have the system on line in the next week.

Four additional enhanced recovery pumping systems are on order, and are expected to arrive by August 1, 1990. These pumping systems will be installed in Recovery Wells R-20, R-35, R-37, and in a new well located near the truck shack. This new well location will not be used to recover product, but will be installed to strictly pump and treat the water for dissolved contamination.

A fourth air stripper will be installed to handle the increased water flow from these additional pumping systems. This is being done to insure that adequate removal of the dissolved constituents is completed. This increased water flow will not be in excess of the flows that were reported in MAPI's application for wastewater discharge permit.

All Monitoring Wells were sampled the week of May 21, 1990. During this sampling event, an EPA contractor took sample splits at six monitoring wells. Rich Cormack witnessed the sampling which took place on May 22. The laboratory results of these samples are listed on the attached table.

CO-037  
William McGee  
July 09, 1990  
Page two

Further investigation has been completed concerning the high levels of benzene which have been found in MW-117, which is located near the truck shack well. Four water samples have been obtained from this monitoring well and the benzene concentration has consistently been near 3,000 ppb. Two additional monitoring wells were installed closer to the product plume, MW-124 and MW-125. (See attached Shannon and Wilson report.) An initial set of samples were obtained from these two new wells on June 06 (see attached Table), and their results indicate that the concentration in MW-117 may be valid. The highest concentration was found in MW-125 which is located directly in front of the JP-4 product plume. An additional set of samples were obtained June 26 to confirm the initial test results.

These high concentrations obtained in the monitoring wells may indicate that samples obtained at the truck shack well through the well pump have indicated a false low concentration. To solve this question, two samples were obtained from the truck shack well on the June 26. (These results have not been received.) The first sample was obtained through the well water pump; the second sample was obtained from a bailor that was dropped down the well.

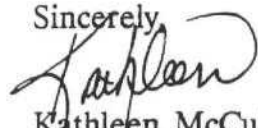
As discussed earlier in this correspondence, due to these unexpected dissolved constituent concentrations an additional well used solely for pumping and treating water will be installed in August in the truck shack vicinity.

A geophysical survey is planned for later this summer of the permafrost of the land north of the fence line. At this time the horizontal and vertical locations of all new Monitoring Wells will be surveyed.

The Monitoring Wells MW-119 and MW-121 will be sampled in July.

If you have any questions or comments, please feel free to call.

Sincerely,



Kathleen McCullom  
Environmental Coordinator  
MAPCO ALASKA PETROLEUM Inc.

KM:jw

Attachments





**SHANNON & WILSON, INC.**

Geotechnical Consultants  
Engineering and Applied Geosciences

*Over  
35 Years of  
Excellence*

2055 Hill Road, P.O. Box 843 • Fairbanks, Alaska 99707 • Telephone (907) 479-0600 • Telefax: (907) 479-5691

June 21, 1990

X-0300

Mapco Alaska Petroleum, Inc.  
1100 H & H Lane  
North Pole, Alaska 99705

Attn: Ms. Kathleen McCullom

**RE: MONITORING WELL INSTALLATION AT MAPCO ALASKA PETROLEUM,  
NORTH POLE REFINERY, NORTH POLE, ALASKA**

Dear Ms. McCullom:

In accordance with your request, two groundwater monitoring wells were installed at the North Pole Refinery on June 6, 1990. This letter describes the results of our field explorations and gives details of the monitoring well installation. The primary purpose of this work was to allow groundwater sampling to determine the presence or absence of hydrocarbon contamination. Authorization for this work was given by Ms. Kathleen McCullom of Mapco Alaska Petroleum on June 4, 1990. The well locations were determined by Ms. McCullom and were referenced to existing structures by our geologist. Locations of the wells are shown in attached Figure 1. The eastern well, MW-124, was intended to check for groundwater contamination which might originate from the gasoline storage tanks and associated piping. The western well, MW-125, was intended to provide information on the concentration of dissolved hydrocarbons which might be originating from the known floating product layer around the JP-4 tank area to the south. Geologic logs and as-built diagrams of the monitoring wells are shown in Figures 2 and 3.

#### Field Methods

The monitoring wells were installed using a truck-mounted CME-55 drill rig equipped with continuous flight, 8-inch O.D. by 4-1/4-inch I.D. hollow stem auger. The borings were drilled to a depth of 25 feet. Drilling operations were supervised and logged by Kate Lamal, a geologist with our firm. As the borings progressed, soil samples were obtained at 2.5-foot intervals from 2.5 to 12.5 feet. Sampling was accomplished by driving a 3-inch O.D. split spoon sampler 18 inches into the soil at the base of the auger with a 300-pound drop hammer falling 30 inches onto the drill rods. For each sample the number of blows required to advance the sampler the final twelve inches is the penetration resistance and measures the relative consistency of unfrozen fine-grained soils

Fairbanks • Anchorage • Seattle • St. Louis

Rohn D. Abbott, P.E.  
Sr. Vice President and Manager

Thomas C. Kinney, P.E.  
Vice President

Fred R. Brown, Jr., P.E.  
Vice President

John E. Cronin, CPG  
Vice President

CONSULTANT  
William L. Shannon, P.E.

and the relative density of unfrozen granular soils. Soil samples obtained using this technique were visually classified in the field, and examined for visible or aromatic hydrocarbon contamination and sealed in airtight containers. From each sample, 250-ml bottles were filled for headspace screening for total volatile compounds present.

The augers and drill rods were cleaned with high pressure hot water prior to drilling each boring. The split spoon samplers were cleaned with water and Liquinox (a laboratory-approved detergent), then rinsed with water and distilled water, between sampling attempts. The augers and drill rods were again decontaminated at an approved location prior to leaving the refinery.

Monitoring well screen and casing were installed through the hollow stem auger after completion of each boring. Two-inch I.D. PVC blank pipe and screen with 0.020-inch machine-cut slots and flush-threaded connections were used to construct the wells. Approximately 5 feet of screen was used in the wells with the screened interval in the general range of 20 to 25 feet. The top of the screened interval is situated below the lowest level of expected groundwater occurrence. The natural formation materials were allowed to cave against the screen and casing as the auger was withdrawn, and were used for backfill. The well casing was sealed in the borings with a bentonite pellet seal placed above the well screen, and an overlying neat cement/bentonite slurry seal at the ground surface.

An above-grade locking, steel protective monument case was installed at each well to limit access to authorized personnel. Seal depths and other pertinent well construction details are noted in the boring logs, Figures 2 and 3. Each well was developed by pumping at an approximate rate of 10 gpm until relatively turbidity-free water was obtained. The water in each well was sampled with a teflon bailer and sealed in three 40-ml bottles for Purgeable Aromatics analyses. Samples were maintained at or near 4°C and shipped to Rocky Mountain Analytical Laboratories under chain of custody. Chain of custody forms are provided in Attachment 1. The results of the laboratory analyses were transmitted directly to Mapco Alaska Petroleum, Inc.

#### Subsurface Conditions

The subsurface soils consisted of a slightly silty, sandy gravel fill underlain by sandy silt, which was underlain by sand or sandy gravel. The gravel fill varied in thickness from 1.5 to 2.0 feet. The underlying sandy silt varied in thickness from 2.5 to 4.0 feet. No



June 21, 1990

visual hydrocarbon contamination was observed in either the soil cuttings or development water.

The soil samples obtained for headspace screening were returned to our office and allowed to equilibrate to room temperature. A Photovac "TIP" photoionization detector was then used to measure total volatile compounds present in the headspace of the sample jars, as a semi-quantitative indication of hydrocarbon contamination. The detector was calibrated to an isobutylene standard, with the readings mathematically corrected to a benzene standard. Headspace gas concentrations measured on the samples are presented in Table 1, rounded to single digit precision. These data indicate the potential presence of slight contamination of the soil or groundwater by hydrocarbons at a depth of 10 feet and below in the western well, MW-125.

The depth to groundwater was measured in each monitoring well following installation. The depth to groundwater is given below.

<u>Monitoring Well</u>	<u>Approximate Well Stickup</u>	<u>Depth to Groundwater Below Ground Surface</u>
MW-124	3.17 ft	7.04 ft
MW-125	3.11 ft	6.46 ft

#### Notifications and Limitations

Two groundwater monitoring wells were installed as part of this project. ADEC General Management Order 2035 interprets Alaska regulation 18AAC80.20c as meaning that "wells...which may cause contamination shall be abandoned by procedures approved by the Department". When you determine that you no longer need these monitoring wells, we recommend that they be abandoned in an approved manner. We are available to assist in this procedure, if desired.

This report presents conclusions based on the observation of drill cuttings and soil samples from soil borings drilled at two specific locations for the installation of monitoring wells. The well locations were determined by Kathleen McCullom of Mapco Alaska Petroleum, Inc. It was not the intent of our exploration to sample the soil for analytical testing for hydrocarbon contamination, or for these two holes to represent a complete investigation of potential contamination in the area.

Ms. Kathleen McCullom

X-0300

Page 4

June 21, 1990

We are available to collect additional groundwater samples for analytical testing from the wells installed for this study or to install additional groundwater wells, if desired.

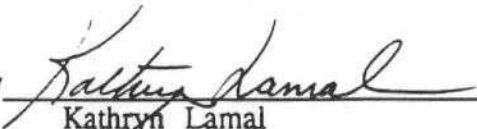
We appreciate the ongoing relationship between Mapco Alaska Petroleum, Inc. and Shannon & Wilson, Inc. and your continued confidence in our firm.

If you have any questions, or if we can be of further assistance, please call.

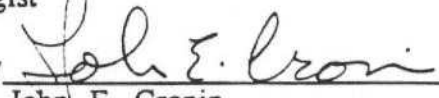
Sincerely,

SHANNON & WILSON,

By

  
Kathryn Lamal  
Geologist

Reviewed By

  
John E. Cronin  
Vice President  
Waste Management/Hydrogeology

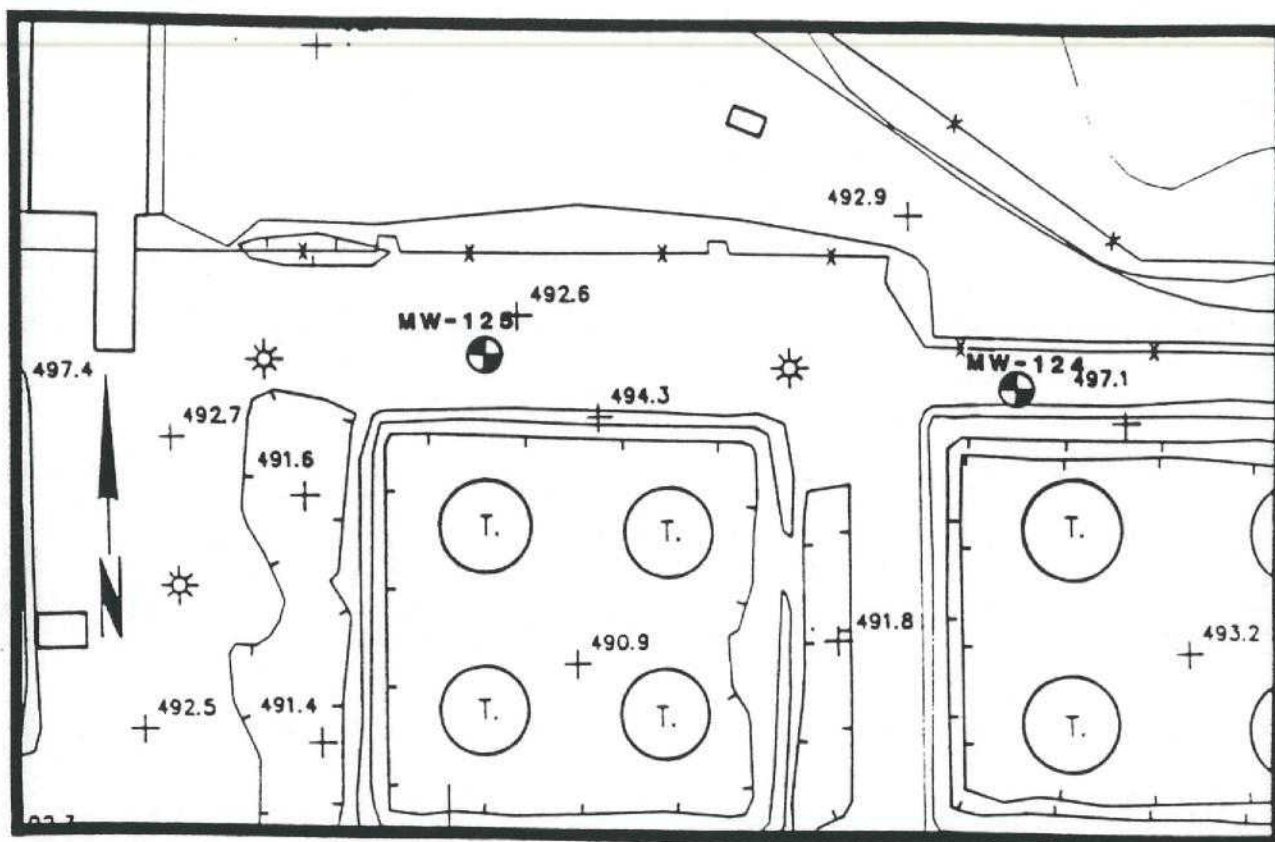
JEC/KL/cb

Enclosures: Table  
Site Map  
Boring Logs  
Attachment 1



TABLE 1  
HEADSPACE GAS CONCENTRATIONS  
(all readings in ppm)

Sample Number	Depth (ft.)	Boring MW-124	Boring MW-125
S-1	2.5-4.0	<1	<1
S-2	5.0-6.5	<1	<1
S-3	7.5-9.0	<1	3
S-4	10.0-11.5	<1	12
S-5	12.5-14.0	<1	10



Legend:

⊕ Monitoring Well Location

Contour Interval = 2 feet

Approximate Scale: 1 inch = 100 feet

This map is based upon map produced  
by Aeromap U.S. for Mapco Alaska  
Petroleum, Inc.

Mapco Alaska Petroleum, Inc  
North Pole Refinery  
North Pole, Alaska

# MONITORING WELL LOCATION AND SITE MAP

June, 1990

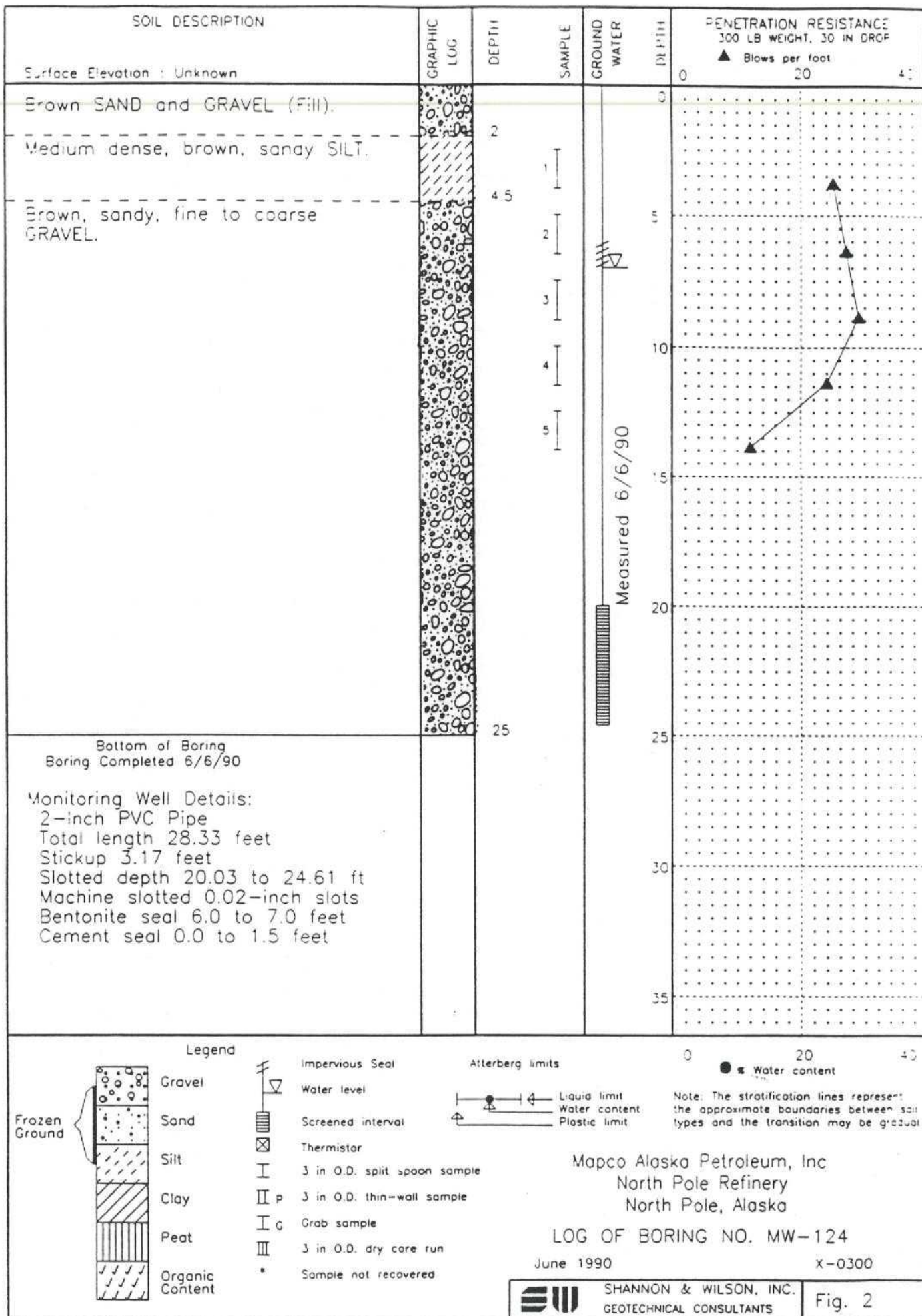
X-0300

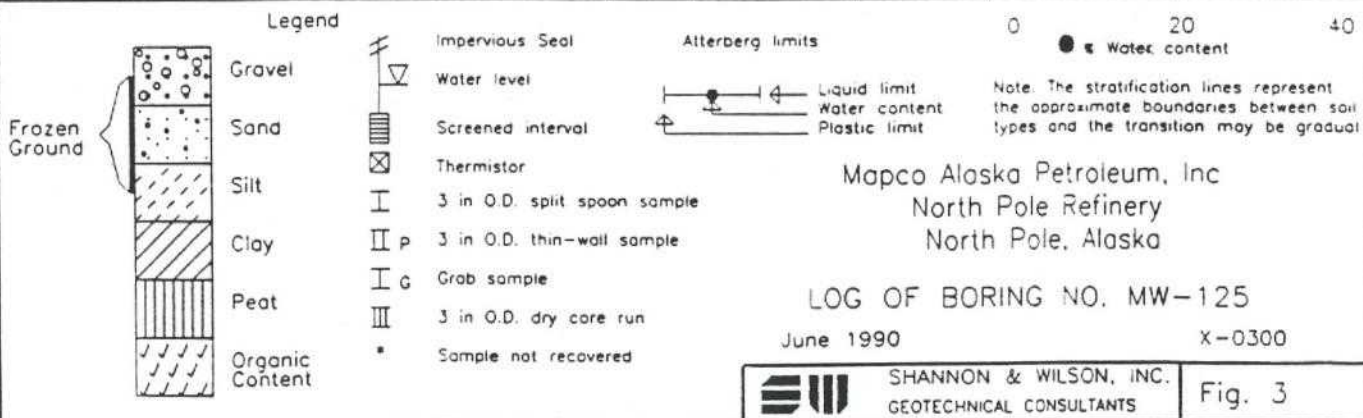
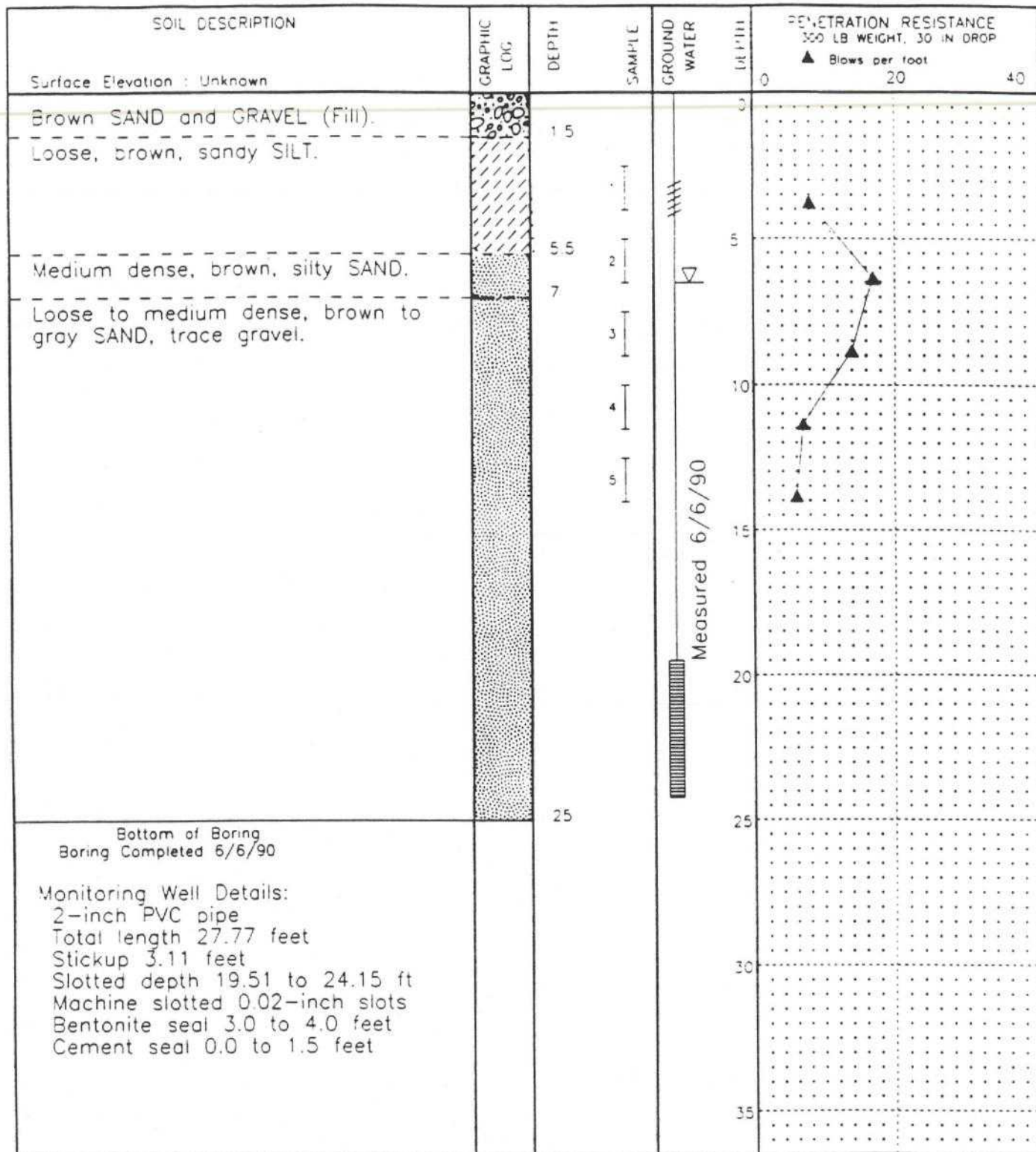


SHANNON & WILSON, INC.  
Geotechnical Consultants

Fig. 1









## CHAIN OF CUSTODY RECORD

SAMPLER (Signature) Kathryn Laval DATE SHIPPED 6-7-90PHONE (907) 479-0600 CARRIER DILLPROJECT NAME 2 Monitoring wells @ Mapco P. O. NO. 19779SHIP TO: Rocky Mountain Analytical Labs  
4955 Yarrow Street  
Arvada Colorado 80002

SEND RESULTS TO:

MAPCO ALASKA PETROLEUM Inc.  
1100 H & H LANE  
NORTH POLE, ALASKA 99705ATTENTION: Randy ThompsonATTENTION: Kathleen McCullenRelinquished by: (Signature) Kathryn Laval Received by: (Signature) \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Relinquished by: (Signature) \_\_\_\_\_ Received by: (Signature) \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

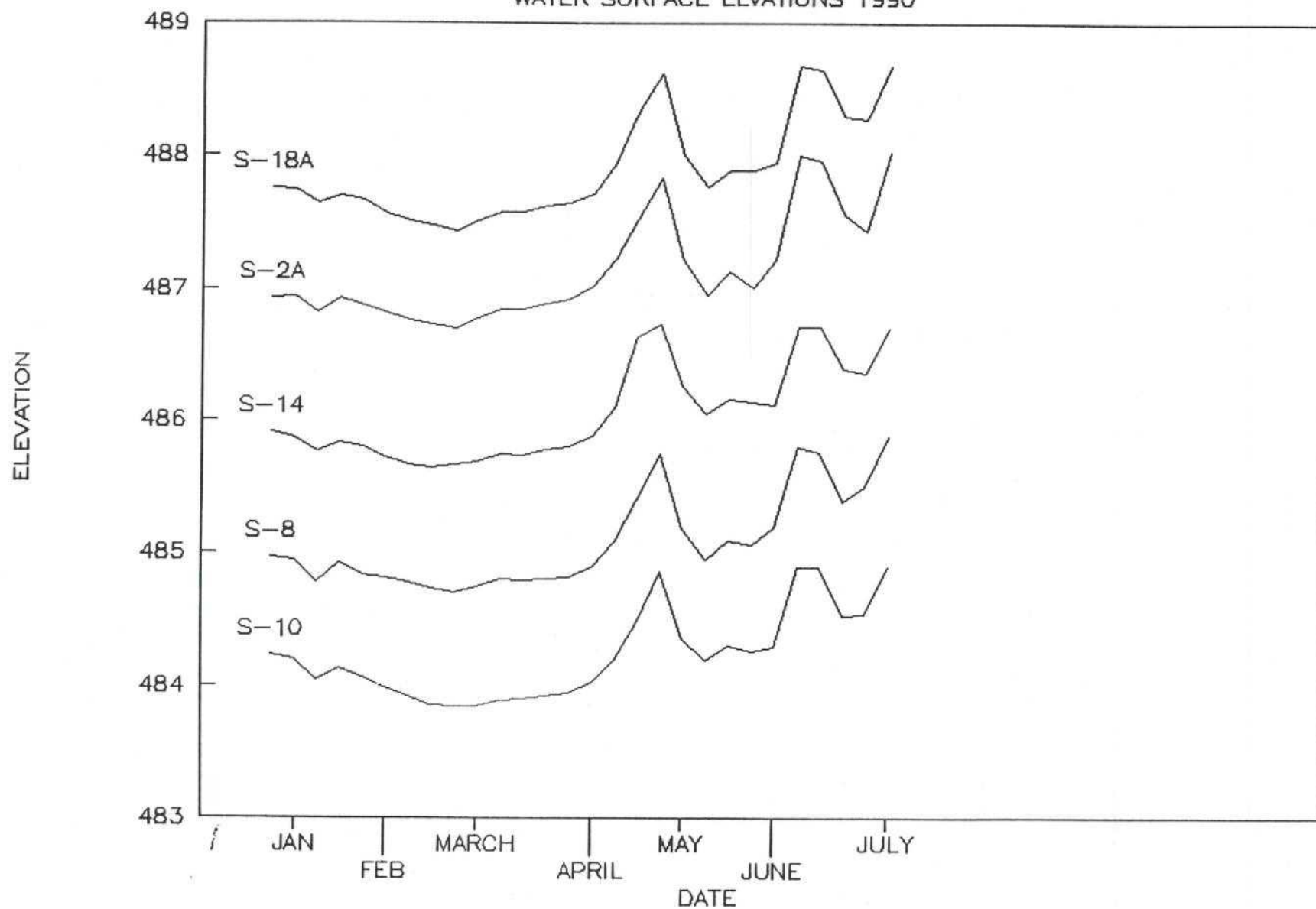
Relinquished by: (Signature) \_\_\_\_\_ Received at lab by: (Signature) \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Relinquished from lab by: (Signature) \_\_\_\_\_ Received by: (Signature) \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

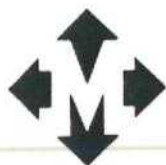
SAMPLE ID NUMBER	SAMPLE DESCRIPTION	NUMBER OF CONTAINERS	DATE SAMPLED	TIME SAMPLED	ANALYSIS REQUESTED	SAMPLE CONDITION UPON RECEIPT
124-6-90	H <sub>2</sub> O	3	6/6/90	2:40 P	EPA 602	
125-6-90	↓	↓	↓	3:35 P	↓	
T01-6-90	↓	↓	6/7/90	8:30 A	↓	

# OBSERVATION WELLS

WATER SURFACE ELVATIONS 1990







CO-038  
**MAPCO ALASKA PETROLEUM INC.**

1100 H&H LANE  
NORTH POLE, ALASKA 99705  
(907) 488-2741

July 09, 1990

Mr. Dave Tetta  
Environmental Protection Agency  
HW-112  
1200 Sixth Avenue  
Seattle, Washington 98101

Re: July 1990 Status Report

Dear Mr. Tetta:

The following is the June 1990 status report concerning activities related to closure or corrective actions that have occurred at MAPCO ALASKA PETROLEUM Inc.'s (MAPI) North Pole refinery since May 09, 1990.

The progress of the groundwater remediation program that is ongoing at the North Pole refinery is reported to Fairbanks' Alaska Department of Environmental Conservation (ADEC). Attached is correspondence addressed to ADEC describing various remediation tasks dated June 09, 1990.

Quarterly sampling of the monitoring wells took place the week of May 21, 1990. PRC Environmental Management, Inc. split samples at six monitoring wells (MW-101, MW-101A, MW-103, MW-104, MW-111, and MW-114). Rich Cormack from ADEC witnessed the samples obtained on May 22. In addition to Halogenated Volatile Organics (EPA Method 601) and Aromatic Volatile Organics (EPA Method 602) samples were analyzed for Total Organic Carbon, Total Organic Halogens, Total Petroleum Hydrocarbons, Total Metals, and Semi Volatile Organics. Attached are the laboratory results from this sampling episode. The results of laboratory methods EPA 601, and 602 are summarized on the attached tables.

As part of MAPI's Quality Control program, two water samples were submitted as double blind audit samples with the November quarterly sampling. Attached is Enseco Rocky Mountain Analytical's response to Radian's evaluation of those blind audit samples.

MAPI's North Pole refinery Community Briefing program held its' first luncheon on May 17, 1990. Both myself and Ms. McCullom presented a program which included the topics presented in the program handout (see attached). There was a discussion session after the presentation that was both inquisitive and positive in nature.

Sumps 901, 905, 05-7 and 909B were cleaned and inspected according to procedures outlined in the Closure Plans submitted to EPA February 01, 1990. Each sump was inspected to have no cracks, with the exception of Sump 905 which is the concrete sump located in the Effluent Building. Small cracks were found at the base of the sump wall. These cracks were not as deep as the wall thickness. To insure no liquid escaped from the sump, the crack was opened up with an air hammer and a sample of soil was obtained from outside of the sump wall. This soil sample was analyzed for Halogenated Volatile Organics (EPA Method 8010), Aromatic Volatile Organics (EPA Method 8020), and Total Petroleum Hydrocarbons. (See attached test results.) As expected, due to the proximity of the sump to the product plume, concentrations of Toluene, Ethyl benzene and Xylene were detected, along with 14 ppm Tetrachlorethane. These levels are all below the Closure Criteria Contamination levels presented in Table 1 of MAPI's Closure plan with the exception of Ethyl benzene. The crack in Sump 905 was patched with concrete, and then the entire sump was lined with steel.

A representative sludge sample was obtained from each sump and was analyzed for hazardous waste characteristics, along with EPA Methods 8010 and 8020. Those test results are attached along with a summarized table. It is MAPI's intention to dispose of this sludge off site in August as a hazardous waste because of the ignitability characteristic.

The Boneyard was sampled on June 05, 1990 according to the procedures outlined in the Closure Plans. Six shallow borings were drilled to obtain samples of insitu soils directly below the gravel pad. (See attached Shannon and Wilson Report.) Soil samples were analyzed for EPA Method's 8010 and 8020). Attached are the sample results. Ethyl benzene and Xylene was detected in two of the borings, well below the levels presented in Table 1 of MAPI's Closure Criteria plan.

There were four composite samples obtained from Lagoon B last fall and analyzed for EPA Method 8020. Two of these samples contained concentrations of benzene greater than .5 ppm. To clarify the issue if the quantity of benzene that is measured by Method EPA 8020 is the same concentration as the quantity of benzene measured by the new Toxic Characteristic Leaching Procedure (TCLP), two additional samples were obtained from Lagoon B. Attached are the test results that indicate the benzene concentration determined from the TCLP procedure is less than the benzene concentration determined from Method 8020. Therefore, this waste will not be characterized as hazardous due to the benzene concentration when these regulations take effect in September, 1990.

MAPI has contracted Global Environmental to remove and dewater the sludge in Lagoon B. The centrifuged solids are then placed on a cement weathering pad for drying and will be disposed of at a later date.





CO-038  
Mr. Dave Tetta  
July 09, 1990  
Page 3

If you have any questions or comments, please don't hesitate to call.

Sincerely,



G. E. Fritz  
General Manager  
MAPCO ALASKA PETROLEUM Inc.

GEF:KM:jw

Attachments  
Express Mail 0B07491219X

cc: Deborah Robinson/EPA w/o attach  
David Ditraglia/ADEC w/attach  
Richard Cormack/ADEC w/attach  
Kathleen Alsup w/attach  
John Cronin/S&W w/attach  
Randy Jones/MAPCO w/o attach  
Dave Rowse/MAPI w/o attach  
Kathleen McCullom/MAPI w/attach



**MAPCO ALASKA PETROLEUM INC.**  
A SUBSIDIARY OF MAPCO INC.



**Appendix B**

**July 9, 1990 Letter from MAPI to DEC**



U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION 10

1200 SIXTH AVENUE

SEATTLE, WASHINGTON 98101

JUN 05 1989

REPLY TO  
ATTN OF: HW-112

Gerald E. Fritz  
General Manager  
MAPCO Alaska Petroleum Inc.  
1100 H & H Lane  
North Pole, Alaska 99705

RECEIVED  
JUN 07 1989

Dear Mr. Fritz:

We have reviewed the pre-closure investigation report submitted on April 5, 1989. Based upon this review we have only the following general comment.

The report indicated that closure plans will be submitted based upon whether hazardous constituents of concern are found. Since these areas once contained hazardous waste they all must go through closure under 40 CFR Part 265 whether hazardous wastes are present now or not. Based upon the information you have submitted to EPA it appears that the majority of the closure activities for Tank 192 and the boneyard have already been accomplished. However these two areas along with the surface impoundment and sumps must be included in the closure plan which must be submitted to and approved by EPA.

Therefore, the closure plan for these units should be developed incorporating the results of the pre-closure investigations. We will review this plan and approve it or modify and approve it after the required public comment period.

Closure for the sumps and surface impoundment may be developed in accordance with the March 19, 1987 Federal Register on hybrid closures. This may be necessary because "clean closure" under Subpart G may not be feasible due to existing groundwater contamination from sources not related to these units.

As a reminder when putting together these plans we would like to see any cleanup or closure to be integrated into other activities occurring at the facility under the 3008(h) order. In other words the Interim Measure Workplan should correspond to the closure plan for Lagoon B and the applicable sumps.

We would prefer that closure for all the units be included in one plan and therefore subject to one public notice. After public notice modification of the plan may be required depending on the nature of the public comments received. The plan will then be approved by EPA. Implementation of the plan will include those tasks required which have not yet been completed and final certification by a professional engineer.

We are also in the process of reviewing the RFI draft workplan, Task I description of current conditions, and pre-investigation evaluation of corrective measures technologies submitted pursuant to the 3008(h) order. We will be submitting comments on these reports upon completion of our review.

If you have questions regarding the closure process contact Bill Adams at (206) 442-2806.

Sincerely, 

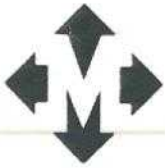
  
Chuck Shenk, Chief  
RCRA Compliance Section

cc: Jeff Mach, Alaska Department of Environmental Conservation



**Appendix C**

**December 20, 1990 Letter from MAPI to EPA**



CO-113  
**MAPCO ALASKA PETROLEUM INC.**

1100 H&H LANE  
NORTH POLE, ALASKA 99705  
(907) 488-2741

Mr. Chuck Shenk  
Chief, RCRA Compliance Section  
United States Environmental Protection Agency  
Region 10  
1200 Sixth Avenue  
Seattle, WA 98101

ATTN: HW-112

RE: MAPCO ALASKA PETROLEUM Inc's Response to EPA's  
Comments on the RFI Workplan

Dear Mr. Shenk:

This letter provides MAPCO ALASKA PETROLEUM Inc's (MAPI) response to the EPA's comments on the RFI workplan submitted to your office pursuant to the 3008(h) consent order. To minimize confusion, each EPA comment is presented and MAPI's response is presented after the comment.

COMMENT

1. The community relations plan does not state the procedures to be used to disseminate information on the progress of the RFI. The plan must include mechanisms for informing the public of the activities conducted during the RFI and the results of the investigations. The progress must occur on a regular planned basis, not be dependent on infrequent seminars or meetings, and be aimed at all members of the local community.

Response

Completed reports will be available at the EPA Region X office in Seattle, and ADEC's offices in Juneau and Fairbanks.

In addition to these repositories, MAPI will develop a "Community Briefing Program". The purpose of this program will be to disseminate information pertinent to MAPI's participation as a community member in assuring a safe, healthy work place, and the developments with the RFI investigations at the North Pole refinery.

Six to eight key community members will be selected to participate in this program. The members will consist of people who are involved in the city government, schools, medical profession, and private business. The members will

Mr. Chuck Shenk, USEPA  
December 20, 1989  
Page 2

be selected because they hold a key positions in the North Pole community which allows them to work closely with the public.

MAPI will prepare a quarterly newsletter and distribute this to each member participating in the briefing program. MAPI will also have a yearly luncheon which will provide a forum for an open dialogue between MAPI representatives and the program members.

#### COMMENT

2. Section 1.1 of the Work Plan should be modified to reflect the regulatory purpose of the RFI, which is the characterization of the nature, extent and rate of migration of releases of hazardous waste or hazardous constituents from the facility. The purpose of the RFI at MAPCO includes the characterization of all hazardous constituent releases from the facility and is not limited to releases of chlorinated hydrocarbons.

#### Response

Replace Section 1.1 Purpose and Assumptions of the RFI, with the following:

The purpose of the RFI is to determine if any hazardous constituents in excess of regulatory levels are present in the sumps, lagoons and groundwater due to the disposal activities. The development of the RFI Work Plan is based on a review of previous investigations, including soil and groundwater samples collected near the designated sites. All sampling and analytical work performed during the investigation will be performed according to the Quality Assurance Project Plan (QAPP) presented as Appendix A in accordance with Item 23 of the Consent Order.



**MAPCO ALASKA PETROLEUM INC.**  
A SUBSIDIARY OF MAPCO INC.



COMMENT

3. A specific schedule for the RFI should be provided. The schedule should be as specific as possible and should indicate dates for submittal of the various components of the RFI Investigation, dates for starting and accomplishing specific tasks associated with the RFI, and dates for reporting information from specific tasks to the EPA.

Response

The following is a schedule for various components of the RFI. The Initial Progress Report submittal date is subject to EPA approval of the workplan. Once laboratory results for soil and groundwater testing has been recieved by MAPI, they inturn will be submitted to EPA in the following bimonthly progress report. Detailed schedules for the closure activities will be submitted with the closure plans on February 1, 1990.

SCHEDULE FOR RCRA FACILITY INVESTIGATION  
MAPI NORTH POLE REFINERY

February 1, 1990	Submit Closure Plans for Lagoon B, Tank 192, Boneyard, Sump 05-7, Sump 901, Sump 905, and Sump 909b.
February 1990	Sample the groundwater from Monitoring wells; MW-101, MW-101A, MW-102, MW-103, MW-107, MW-109, MW-110, MW-111, MW-112, MW-113, MW-114, MW-115, MW-116. Analyze samples for EPA 601 and 602.
March 10, 1990	Submit initial bimonthly progress report which will include a summary of the field work completed during the past year which relates to the closure or corrective action activities.
March 1990	Collect and analyze sludge from Sump 05-7, Sump 901, Sump 905, and Sump 909b.
April 1990	Community Briefing Luncheon
April 1990	Sample and analyze soil from the northern and central portion of the boneyard.
May 10, 1990	Submit bimonthly progress report.



**MAPCO ALASKA PETROLEUM INC.**  
A SUBSIDIARY OF MAPCO INC.

Mr. Chuck Shenk, USEPA  
December 20, 1989  
Page 4

May 1990	Sample the groundwater from Monitoring wells; MW-101, MW-101A, MW-102, MW-103, MW-107, MW-109, MW-110, MW-111, MW-112, MW-113, MW-114, MW-115, MW-116. Analyze samples for EPA 601 and 602.
July 1990	Distribute Community Briefing Newsletter.
July 10, 1990	Submit bimonthly progress report.
September 10, 1990	Submit bimonthly progress report.
October 1990	Distribute Community Briefing Newsletter.
November 10, 1990	Submit bimonthly progress report.
January 1991	Distribute Community Briefing Newsletter.
January 10, 1991	Submit bimonthly progress report.

If you have any further comments or questions, please call me.  
Sincerely,

  
Gerald E. Fritz  
General Manager  
MAPCO ALASKA PETROLEUM Inc.

GEF/mjw

cc: David Ditraglia, ADEC, Juneau  
Robert Wallace, RADIAN  
John Cronin, Shannon & Wilson  
Randy Jones, MAPCO, Tulsa  
David C. Rowse, Engineering Manager  
Kathleen McCullom, Environmental Coordinator



**MAPCO ALASKA PETROLEUM INC.**  
A SUBSIDIARY OF MAPCO INC.

**Appendix D**  
**Photographs**



Photograph #1: Sump 05-7 with monitoring well 115 in background



Photograph #2: Sump 901 with monitoring well 116 to the right



Photograph #3:

Tank 192



Photograph #4:

Sump 905 (although not lined previously MAPI now intends to line this sump)





Photograph #5: Lagoon B (1 of 2)



Photograph #6: Lagoon B (2 of 2)





Photograph #7: Sump 909b (effluent sump to city)



Photograph #8: Lagoon C (effluent water flows from Lagoon A to Lagoon C to sump 909b to City of North Pole)



Photograph #9:

Boneyard

